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UNITED STATES STANDARDS

for grades of

FROZEN BROCCOLI

Fifth Issue

EFFECTIVE JULY 1, 1975

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
FRUIT AND VEGETABLE DIVISION
PROCESSED PRODUCTS STANDARDIZATION AND INSPECTION BRANCH

These standards supersede the standards which have been in effect since
April 14, 1962

This is the fifth issue of the United States Standards for Grades of Frozen Broccoli. These standards are issued by the Department after careful consideration of all data and views submitted. They were published in the Federal Register of April 8, 1975 (40 F.R. 15890), subsequent corrections published in the Federal Register of April 30, 1975 (40 F.R. 18753) and May 5, 1975 (40 F.R. 19429) to become effective July 1, 1975 and will supersede the standards which have been in effect since April 14, 1962.

Previous issues of these standards were:

<i>Tentative (First issue):</i>	<i>Effective July 1, 1942</i>
<i>Second Issue - Published in the</i> <i>Federal Register of July 1, 1950</i> <i>(15 F.R. 4211)</i>	<i>Effective August 1, 1950</i>
<i>Recodified in the Federal Register</i> <i>of December 9, 1953 (18 F.R. 7945)</i>	
<i>Third Issue - Published in the Federal</i> <i>Register of January 28, 1959</i> <i>(24 F.R. 594)</i>	<i>Effective March 1, 1959</i>
<i>Fourth Issue - Published in the Federal</i> <i>Register of April 14, 1962</i> <i>(27 F.R. 3538)</i>	<i>Effective April 14, 1962</i>

These standards are included in the Code of Federal Regulations,
(CFR, Part 52).

Issued under the authority of the Agricultural Marketing Act of 1946, which provides for the development of official U.S. grades to designate different levels of quality, the grade standards are for the voluntary use of producers, suppliers, buyers, and consumers. As in the case of other standards for grades of processed fruits and vegetables, these standards are designed to facilitate orderly marketing by providing a convenient basis for buying and selling, for establishing quality control programs, and for determining loan values.

These standards will also serve as a basis for the inspection and grading of this commodity by the Federal inspection service, which is also provided under the Agricultural Marketing Act of 1946. This service, available for inspection and grading of other processed products as well, is offered to interested parties, upon application, on a fee-for-service basis.

These standards are issued by the Department after careful consideration of all data and views submitted, and the Department welcomes suggestions which might aid in improving the standards in future revisions. Comments may be submitted to, and copies of standards obtained from:

Chief, Processed Products Standardization
and Inspection Branch
Fruit and Vegetable Division, AMS
U.S. Department of Agriculture
Washington, D.C. 20250

UNITED STATES STANDARDS FOR GRADES OF FROZEN BROCCOLI

EFFECTIVE JULY 1, 1975

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(Authority: Agricultural Marketing Act of 1946, Sec. 205, 60 Stat. 1090, as amended; 7 U.S.C. 1624).

§52.631 PRODUCT DESCRIPTION.

"Frozen broccoli" is the product prepared from the fresh, clean sound stalks or shoots of the broccoli plant (*Brassica oleracea* [Italica group]) by trimming, washing, blanching, sorting, and properly draining. The product is frozen in accordance with good commercial practice and maintained at temperatures necessary for preservation of the product.

§52.632 STYLES OF FROZEN BROCCOLI

- (a) "*Spears*" or "*stalks*" consists of the head and adjoining portions of the stem, with or without attached leaves, ranging from not less than 3-1/2 inches (8.9 cm) to not more than 6 inches (15.2 cm) in length. Such spears or stalks may be cut longitudinally.
- (b) "*Short spears*" or "*florets*" consists of the head and adjoining portions of the stem, with or without attached leaves, ranging in length from not less than 1 inch (2.5 cm) to less than 3-1/2 inches (8.9 cm) and weigh more than 0.2 ounce (6 gm.). Such short spears or florets may be cut longitudinally.
- (c) "*Cut*" consists of spears or stalks cut into portions ranging from 3/4 inch (1.9 cm) or more but not more than 2 inches (5.1 cm) in length. This style contains not less than 25 percent, by weight, of head material and not more than 25 percent, by weight, of leaf material.
- (d) "*Chopped*" consists of spears or stalks cut into portions predominantly less than 3/4 inch (1.9 cm) in length. This style contains not less than 25 percent, by weight, of head material and not more than 25 percent, by weight, of leaf material.
- (e) "*Pieces*" consists of cut or chopped portions of spears or stalks which do not meet the requirements for "cuts" or "chopped" style.

§ 52.633 STYLE CLASSIFICATION COMPLIANCE.

- (a) *General*. For the purpose of determining compliance with the requirements for the various styles the following are considered as minor or major defects, as specified, and shall not exceed the acceptance numbers in Table I, (or I Alternate), II, or III, as applicable for the style.
- (1) "*Spears*" or "*stalks*" - each unit longer than 6-1/8 inches (15.6 cm) or shorter than 3-3/8 inches (8.6 cm) = 1 minor.
 - (2) "*Short spears*" or "*florets*" - each unit longer than 3-5/8 inches (9.2 cm), or unit shorter than 7/8 inch (2.2 cm) = 1 minor.
 - (3) "*Cuts*"
 - (i) Units less than 1/2 inch (1.3 cm) in the longest dimension - Each 0.5 ounce (14.0 grams) or fraction thereof in increments of at least 0.2 ounce (6 grams) = 1 minor.
 - (ii) Each unit (individual piece) more than 2 inches (5.1 cm) in the longest dimension = 1 major.
 - (4) "*Chopped*" - units more than 3/4 inch (1.9 cm) in the longest dimension = 1 minor.
- (b) For the styles of cuts and chopped, pieces of leaves are not considered as length defects.

TABLE I
 SPEARS; SHORT SPEARS
 Tolerances for Style Compliance
 Sample unit size = 50 spears or short spears

Number of Sample Units	Number of Units	<u>Maximum Number Defects Permitted</u>	
		<u>Minor</u>	
		AL value - 11	AQL - 10.0
1	50	9	
2	100	15	
3	150	21	
4	200	27	
5	250	33	
6	300	38	
7	350	44	
8	400	50	
9	450	55	
10	500	62	
11	550	66	
12	600	72	
13	650	77	
14	700	83	
15	750	88	
16	800	95	
17	850	99	
18	900	105	
19	950	110	
20	1000	115	
21	1050	121	

TABLE I (Alternate)
SPEARS; SHORT SPEARS
Tolerances for Style Compliance
Sample Unit Size = 18 spears or short spears

Number of Sample Units	Number of Units	<u>Maximum Number Defects Permitted</u>	
		<u>Minor</u>	
		AL value - 6	AQL = 10.0
1	18	4	
2	36	7	
3	54	9	
4	72	11	
5	90	14	
6	108	16	
7	126	18	
8	144	20	
9	162	22	
10	180	25	
11	198	27	
12	216	29	
13	234	31	
14	252	33	
15	270	35	
16	288	37	
17	306	39	
18	324	41	
19	342	43	
20	360	45	
21	378	47	

TABLE II
CUTS
Tolerances for Style Compliance
Sample Unit Size = 10 oz. (283 gm.)

Number of Sample Units	Weight of Product (ounces) (grams)		Maximum Number Defects Permitted	
			AQL - 15.0** Minor AL value = 6	AQL - 6.5* Major AL value = 10
1	10	283	4	7
2	20	567	7	12
3	30	850	9	17
4	40	1134	12	22
5	50	1417	14	27
6	60	1701	16	31
7	70	1984	19	36
8	80	2268	21	40
9	90	2551	23	45
10	100	2835	25	49
11	110	3118	27	54
12	120	3402	29	58
13	130	3685	31	62
14	140	3969	33	67
15	150	4252	36	71
16	160	4536	38	75
17	170	4819	40	80
18	180	5103	42	84
19	190	5386	44	88
20	200	5670	46	92
21	210	5953	48	97

*Based on an estimated count of 6 per ounce of product exclusive of chaff.

**Based on 5 pieces per .12 ounce exclusive of chaff.

TABLE III
CHOPPED
Tolerances for Style Compliance
Sample Unit Size = 10 oz. (283 gm.)

Number of Sample Units	Weight of Product (ounces) (grams)		Maximum Number Defects Permitted
			<u>Minor</u> AL value - 28 AQL = 8.5*
1	10	283	23
2	20	567	43
3	30	850	62
4	40	1134	81
5	50	1417	99
6	60	1701	118
7	70	1984	136
8	80	2268	154
9	90	2551	172
10	100	2835	191
11	110	3118	209
12	120	3402	226
13	130	3685	244
14	140	3969	262
15	150	4252	280
16	160	4536	298
17	170	4819	316
18	180	5103	334
19	190	5386	351
20	200	5670	369
21	210	5953	387

*Based on an estimated count of 20 per ounce of product exclusive of chaff

§52.634 DEFINITION OF TERMS.

- (a) *Absolute limit (AL)*. Limit for maximum number of defects permitted in a sample unit.
- (b) *Acceptable Quality Level (AQL)*. Acceptable Quality Level (AQL) is the maximum percent defective, or the maximum number of defects per hundred units, that, for purposes of sampling inspection, can be considered satisfactory as a process average.
- (c) *Blemished*. A unit of broccoli that is blemished by pathological injury, hollow stems, pithy stems, insect injury, or discolored by other means, such as, but not limited to, small orange or yellowish-orange buds, to the extent that the appearance or eating quality is adversely affected:
 - (1) Slightly;
 - (2) Materially; or
 - (3) Seriously.
- (d) *Broken*. In the styles of spears or short spears means any broken or detached portions, other than loose leaves or portions thereof, which weigh more than 0.2 ounce (6 grams) and are definitely not intact units.
- (e) *Color*.
 - (1) *Good color* - The outside of the stalk is a bright, distinct green. The top of the head is a bright, distinct green and may show a slight purplish cast. Such color may also include lighter colored areas on the outside of the head typical of young and tender broccoli.
 - (2) *Reasonably good color* - The outside of the stalk may be dull and may possess a slight brownish, yellowish, or grayish cast. The head may be dull and possess a slight brownish, grayish, or yellowish cast and/or yellow buds due to flowering that do not seriously affect the color appearance.
 - (3) *Poor color* - The presence of yellow buds due to flowering, or any brownish, grayish, or yellowish casts that seriously affect the color appearance of the broccoli unit.
- (f) *Damage*. A spear or short spear on which the head is damaged by mechanical injury, other than "broken", to the extent that the appearance or eating quality is materially affected.
- (g) *Defect*. Any specifically defined variation from a particular requirement. "Defects" are classified as "minor", "major", "severe", or "critical."

(h) *Detached fragments.* In the styles of spears and short spears a detached fragment is any small piece or detached portion other than loose leaves or portions thereof, which weighs 0.2 ounce (6 grams) or less.

(i) *Development.*

(1) *Well developed.*

(i) *Spears and short spears:*

(a) The spreading of the branching bud clusters which comprise the head of the unit does not materially affect the appearance of the unit; and

(b) The broccoli is in the early stage of maturity such that the individual buds and the immediate stems supporting the individual buds form a compact bud cluster.

(2) *Reasonably well developed.*

(i) *Spears and short spears:*

(a) The spreading of the branching bud clusters which comprise the head of the unit does not seriously affect the appearance of the unit; and

(b) The broccoli is in the intermediate stage of maturity such that the individual buds and the immediate stems supporting the individual buds form a reasonably compact bud cluster.

(ii) *All styles:* The individual buds are not more than moderately enlarged and practically none of the individual buds are in the flowered stage.

(3) *Poorly developed.*

(i) *Spears and short spears:*

(a) The branching bud clusters which comprise the head of the unit may be spread to the extent that the appearance of the unit is seriously affected; and

(b) The broccoli is in the advanced stage of maturity such that the individual buds and the immediate stems supporting the individual buds form a loosely structured bud cluster.

(ii) *All styles:* The individual buds are in the flowered stage or are more than moderately enlarged with or without reaching the flowered stage.

- (j) *Deviant.* As applied to these standards, "deviant" means a sample unit which fails the requirements for one or more of the prerequisite quality factors specified in §52.636 by not more than one grade below the intended grade.
- (k) *Diameter.* The diameter of a spear is the greatest dimension at approximately right angles to the longitudinal axis of the spear approximately 1 inch (2.5 cm) from the base end.
- (l) *Extraneous vegetable material.*
- (1) *Class 1.* Tender, green blades of grass or weeds or leaves which are harmless.
 - (2) *Class 2.* Coarse blades of grass or weeds or leaves which may or may not be tender or green and which are harmless.
- (m) *Fiber.* Fiber that developed near the outside portion of the broccoli stem that is tough and/or woody.
- (n) *Flavor and odor.*
- (1) *Good flavor and odor* - The product has a good characteristic flavor and odor but is free from objectionable flavors or objectionable odors of any kind.
 - (2) *Fairly good flavor and odor* - The product may be lacking in good flavor and odor but is free from objectionable flavors or objectionable odors of any kind.
- (o) *Head material.* "Head material" in the styles of cuts and chopped consists of buds or bud clusters whether or not attached to a portion of a spear and includes the fine stem material by which buds or bud clusters are attached to the main stem.
- (p) *Leaf material.* "Leaf material" in the styles of cuts, chopped, and pieces means any portion of a leaf not attached to a portion of a spear.
- (q) *Loose leaves or pieces of leaves.* Broccoli leaves or pieces of leaves in the styles of spears and short spears not attached to a unit.
- (r) *Sample.* The number of sample units to be used for inspection.

(s) *Sample unit.* The amount of product specified to be used for inspection. It may be:

- (1) The entire contents of a container; or
- (2) A portion of the contents of a container; or
- (3) A combination of the entire or partial contents of two or more containers; or
- (4) A portion of unpacked product.

(t) *Trim.*

- (1) "*Well trimmed*" (spears; short spears only) - Means that the appearance of the unit is not materially affected by the presence of attached leaves or pieces of leaves and not more than slightly affected by ragged or partial removal of leaves or small side shoots, or by poor cutting of the stem.
- (2) "*Reasonably well trimmed*" (spears; short spears only) - Means that the appearance of the unit is not seriously affected by the presence of attached leaves or pieces of leaves and not materially affected by ragged or partial removal of leaves or small side shoots, or by poor cutting of the stem.
- (3) "*Poorly trimmed*" (spears; short spears only) - Means that the appearance of the unit is seriously affected by the presence of attached leaves or pieces of leaves, ragged or partial removal of leaves or small side shoots, or by poor cutting of the stem.

(u) *Unit.* Any individual portion of broccoli other than loose leaves or individual buds.

§ 52.635 SAMPLE UNIT SIZE.

(a) *For head material and leaf material.*

- (1) *Cuts* - 10 ounces (283 grams) of product.
- (2) *Chopped* - 1-3/4 ounces (50 grams) of product.

(b) *For style (other than head material and leaf material) and quality factors.*

- (1) *Spears; short spears* - 50 units; alternate - 18 units.
- (2) *Cuts; chopped; pieces* - 10 ounces (283 grams) of product.

Broken, crushed, or similarly damaged portions of units of product in the styles of spears and short spears are reassembled and included in the count as whole units.

Head and leaf material in the styles of cut and chopped, loose leaves or pieces in the styles of spears and short spears, and extraneous material in all product styles are part of the standard sample unit size. They are not included in the count of spears and short spears but are included in the weight of cut and chopped broccoli. Such pieces and other extraneous material are considered part of the sample unit:

- (1) When they are in a container whose entire contents are included in the sample unit;
- (2) When they are in the last of several containers included in the sample unit and 50 percent or more of the contents are required for the sample unit. None of the pieces and HEM in the last of several containers is considered part of the sample unit when less than 50 percent of its contents are required for the sample unit; and
- (3) When they are commingled with all of the product required for the sample unit and such product is taken from but is not the entire contents of a single container.

§52.636 GRADES.

(a) *U.S. Grade A (or U.S. Fancy)* is the quality of frozen broccoli that:

- (1) Meets the following prerequisites (with deviants as specified in §52.641 (a));
 - (i) Has similar varietal characteristics;
 - (ii) Has a good flavor and odor;
 - (iii) Is practically free from grit or silt;
 - (iv) Has a good, bright, overall color appearance;
 - (v) With respect to the styles of cuts, chopped, and pieces; has individual buds that are at least reasonably well developed; and
- (2) Meets the requirements for the various quality factors in Table V (or V Alternate), VI, or VII as applicable for the style.

(b) *U.S. Grade B (or U.S. Extra Standard)* is the quality of frozen broccoli that:

- (1) Meets the following prerequisites (with deviants as specified in §52.641 (a));
 - (i) Has similar varietal characteristics;
 - (ii) Has at least a fairly good flavor and odor;
 - (iii) Has no more than a trace of grit or silt;
 - (iv) Has at least a reasonably good overall color appearance which may be slightly dull;
 - (v) With respect to the styles of cuts, chopped, or pieces; may have poorly developed buds that do not materially affect the appearance of the product; and

(2) Meets requirements for the various quality factors in Table V (or V Alternate), VI, or VII as applicable for the style.

(c) *Substandard* is the quality of frozen broccoli that fails to meet the requirements for U.S. Grade B.

§52.637 FACTORS OF QUALITY AND GRADE COMPLIANCE.

(a) The grade of a lot of frozen broccoli is based on compliance with the prerequisites specified in §52.636 and with requirements for the following quality factors:

- (1) Color;
- (2) Uniformity of size;
- (3) Detached fragments;
- (4) Loose leaves or pieces of leaves;
- (5) Damage; broken; blemished;
- (6) Trim, with respect to the styles of spears and short spears;
- (7) Development;
- (8) Fiber; and
- (9) Harmless extraneous material.

TABLE IV

CLASSIFICATION OF DEFECTS

Quality Factor	Defect	Classification			
		Min.	Maj.	Sev.	Crit.
Color	<u>Spears and Short spears</u> Reasonably good-(In Grade A only).		X		
Uniformity of size	<u>Poor Spears</u> Length variation - Greater than 2 inches (5.09 cm).		X	X	
	<u>Spears</u> Diameter variation - Greater than 3/4 inch (1.9 cm).	X			
	<u>Short Spears</u> Weight variation - Largest unit is 4 times or more greater than smallest unit.	X			
Detached	<u>Spears and Short Spears</u> Each 1.0 ounce (28 gm.) or fraction thereof in increments of at least 0.5 ounce (14 gm.).		X		
Loose leaves and pieces of leaves	<u>Spears and Short Spears</u> Each 0.5 ounce (14 gm.) or fraction thereof in increments of at least 0.2 ounce (6 gm.).	X			
Broken	Spears and Short Spears.	X			
Damage	Mechanical or other means.	X			
Blemished	Units adversely affected: Slightly	X			
	Materially		X		
	Seriously			X	

TABLE IV (Continued)

CLASSIFICATION OF DEFECTS

Quality Factors	Defect	Classification			
		Min.	Maj.	Sev.	Crit.
Trim	<u>Spears and Short Spears</u> Reasonably well (in Grade A only).	X			
	Poorly: In Grade A In Grade B	X	X		
Development	<u>Spears and Short Spears</u> Reasonably well developed (in Grade A only).	X			
	Poorly developed.		X		
Fiber	<u>All Styles</u> Not woody Woody		X	X	
Harmless Extraneous Material	<u>Spears and Short Spears</u> Class 1 - (each piece) Class 2 - (each piece)			X	X
	<u>Cuts, Chopped, Pieces</u> Class 1 - each 1 inch (2.5 cm) or fraction thereof.			X	
	Class 2 - each 1 inch (2.5 cm) or fraction thereof.				X

TABLE V
SPEARS; SHORT SPEARS
Grade Compliance. Sample Unit Size = 50 Units

Absolute Limit (AL)		GRADE A				GRADE B			
		20	9	3	2	24	12	5	1
Number of Sample Units	Number of Spears or Short Spears	TOTAL <u>1/</u>	MAJ.	SEV.	CRIT.	TOTAL <u>1/</u>	MAJ.	SEV.	CRIT.
1	50	15	6	1	0	18	9	3	1
2	100	27	11	2	1	33	15	5	2
3	150	39	15	3	1	48	21	7	3
4	200	50	19	3	2	62	27	9	3
5	250	62	23	4	2	75	33	10	4
6	300	73	27	4	3	89	39	12	4
7	350	84	31	5	3	103	45	14	5
8	400	95	34	5	3	116	50	15	5
9	450	105	38	6	3	130	56	17	6
10	500	116	42	6	4	143	62	18	6
11	550	127	46	7	4	157	67	20	7
12	600	138	49	7	4	170	73	21	7
13	650	149	53	8	4	183	78	23	8
14	700	159	57	8	5	197	84	24	8
15	750	170	60	9	5	210	89	26	9
16	800	181	64	9	5	223	95	27	9
17	850	191	67	10	5	236	100	29	10
18	900	202	71	10	6	250	105	30	10
19	950	213	75	10	6	263	111	32	10
20	1000	223	78	11	6	276	116	33	11
21	1050	234	82	11	6	289	122	35	11
AQL		20.0	6.5	0.65	0.30	25.0	10.0	2.5	0.65

1/ Total equals minor plus major plus severe plus critical.

TABLE V (ALTERNATE)
SPEARS; SHORT SPEARS
Grade Compliance. Sample Unit = 18 units

Absolute Limit (AL)		GRADE A				GRADE B			
		9	5	2	1	10	6	3	2
Number of Sample Units	Number of Spears of Short Spears	TOTAL 1/	MAJ.	SEV.	CRIT.	TOTAL 1/	MAJ.	SEV.	CRIT.
1	18	7	3	0	0	8	4	1	0
2	36	12	5	0	0	14	7	3	0
3	54	16	7	1	0	20	9	3	1
4	72	21	8	1	0	25	12	4	1
5	90	25	10	2	1	30	14	5	2
6	108	29	11	2	1	36	16	6	2
7	126	33	13	2	1	41	19	6	2
8	144	38	14	3	1	46	21	7	3
9	162	42	16	3	1	51	23	7	3
10	180	46	17	3	1	56	25	8	3
11	198	50	19	3	2	61	27	9	3
12	216	54	20	3	2	66	29	9	3
13	234	58	22	4	2	71	31	10	4
14	252	62	23	4	2	76	33	11	4
15	270	66	24	4	2	81	36	11	4
16	288	70	26	4	3	86	38	12	4
17	306	74	27	4	3	91	40	12	4
18	324	78	29	5	3	96	42	13	5
19	342	82	30	5	3	101	44	13	5
20	360	86	31	5	3	105	46	14	5
21	378	90	33	5	3	110	48	15	5

QL
/ Total equals minor plus major plus severe plus critical.

TABLE VI
CUTS; PIECES
Grade Compliance. Sample Unit Size = 10 ounces (283 gm)

Absolute Limit (AL)			GRADE A				GRADE B			
			18	5	3	2	34	11	5	4
Number of Sample Units	Weight of Product (ounces) (grams)		TOTAL 1/	MAJ.	SEV.	CRIT.	TOTAL 1/	MAJ.	SEV.	CRIT.
1	10	283	13	4	2	1	27	8	3	2
2	20	567	24	7	3	2	50	14	4	3
3	30	850	34	10	4	3	73	20	6	4
4	40	1134	44	13	5	3	95	25	7	5
5	50	1417	53	15	6	4	116	30	9	6
6	60	1701	63	18	7	4	138	36	10	7
7	70	1984	72	20	8	5	159	41	11	8
8	80	2268	81	23	9	5	181	46	13	9
9	90	2551	91	25	10	6	202	51	14	10
10	100	2835	100	27	11	6	223	56	15	11
11	110	3118	109	30	12	6	244	61	17	12
12	120	3402	119	32	12	7	266	66	18	12
13	130	3685	128	34	13	7	287	71	19	13
14	140	3969	137	37	14	8	308	76	20	14
15	150	4252	146	39	15	8	329	81	21	15
16	160	4536	155	41	16	9	349	86	23	16
17	170	4819	164	44	17	9	370	91	24	17
18	180	5103	173	46	17	9	390	96	25	17
19	190	5386	182	48	18	10	412	101	26	18
20	200	5670	191	50	19	10	433	105	27	19
21	210	5953	200	53	20	11	454	110	29	20

AQL $\frac{2}{1}$ 8.5 2.0 0.65 0.30 20.0 4.5 1.0 0.65

$\frac{1}{2}$ Total equals minor plus major plus severe plus critical.

$\frac{2}{2}$ Based on an estimated count of 6 per ounce of product exclusive of chaff.

TABLE VII
CHOPPED
Grade Compliance. Sample Unit Size = 10 ounces (283 gm)

Absolute Limit (AL)			GRADE A				GRADE B			
			12	6	4	2	20	9	5	4
Number of Sample Units	Weight of Product (ounces) (grams)		TOTAL 1/	MAJ.	SEV.	CRIT.	TOTAL 1/	MAJ.	SEV.	CRIT.
1	10	283	9	4	2	1	15	6	3	2
2	20	567	15	6	3	2	27	10	4	3
3	30	850	21	8	4	3	39	14	6	4
4	40	1134	27	10	5	3	50	18	7	5
5	50	1417	33	12	6	4	62	21	9	6
6	60	1701	39	14	7	4	73	25	10	7
7	70	1984	45	16	8	5	84	29	11	8
8	80	2268	50	18	9	5	95	32	13	9
9	90	2551	56	20	10	6	105	36	14	10
10	100	2835	62	21	11	6	116	39	15	11
11	110	3118	67	23	12	6	127	42	17	12
12	120	3402	73	25	12	7	138	46	18	13
13	130	3685	78	27	13	7	149	49	19	14
14	140	3969	84	29	14	8	159	53	20	15
15	150	4252	89	30	15	8	170	56	21	15
16	160	4536	95	32	16	9	181	59	23	16
17	170	4819	100	34	17	9	191	63	24	17
18	180	5103	105	36	17	9	202	66	25	17
19	190	5386	111	37	18	10	213	69	26	18
20	200	5670	116	39	19	10	223	73	27	19
21	210	5953	122	41	20	11	234	76	29	20
AQL	2/		5.0	1.5	0.65	0.30	10.0	3.0	1.0	0.65

1/ Total equals minor plus major plus severe plus critical.

2/ Based on an estimated count of 20 per ounce of product exclusive of chaff.

§52.638 SAMPLE SIZE.

- (a) *General.* The sample size to determine compliance with requirements of these standards shall be as specified in the sampling plans and procedures in the "Regulations Governing Inspection of Processed Fruits and Vegetables and Related Products" (§§52.1- 52.83), for Lot Inspection or On-Line Inspection, as applicable.
- (b) *Deviants.* The acceptance numbers for deviants specified in the sampling plans cited in paragraph (a) of this section apply only to the prerequisite factors specified for the grade in §52.636. They do not apply to the quality factors covered by the sampling plans in §52.637.

§52.639 DETERMINING PROPORTIONS OF HEAD MATERIAL AND LEAF MATERIAL.

- (a) *Method.* The percent, by weight, of head material and leaf material in cut and chopped broccoli may be determined as follows:
 - (1) *Equipment needed.*
 - (i) 250 ml beaker.
 - (ii) Gram scale, or other suitable scale graduated to 0.1 ounce.
 - (iii) Laboratory tweezers, scalpel, or other instrument suitable for separating the stem material, leaf material, and head material.
 - (iv) Flat grading tray.
 - (2) *Procedure.*
 - (i) Thoroughly mix sample unit to be tested if sample unit is not the entire contents of the container.
 - (ii) Weigh approximately 50 grams (1-3/4 ounces) in the case of chopped product in a previously tared 250 ml beaker.
 - (iii) In the case of cut style weigh 283 grams (10 ounces) of product in a suitable previously tared container.
 - (iv) Spread the weighed product out on a flat grading tray.
 - (v) Separate the stem material from the head and leaf material; weigh the stem material, and record.
 - (vi) Separate the leaf material from the head material; weigh each separately and record.
 - (vii) The weight of the head material divided by the sum of the weights of the stem, head, and leaf materials multiplied by 100 is the percent, by weight, of head material.

- (viii) The weight of leaf material divided by the sum of the weights of the stem, head, and leaf materials multiplied by 100 is the percent, by weight, of leaf material.

§52.640 LOT ACCEPTANCE FOR STYLE.

(a) *Spears; short spears.*

A lot of frozen broccoli is considered as meeting the style requirements for spears or short spears, as applicable, if the defects permitted and the AL value specified in Table I or Table I Alternate are not exceeded.

(b) *Cuts; Chopped.*

- (1) *Head material; Leaf material* - A lot of frozen broccoli is considered as meeting the style requirements for cuts or chopped for head material and leaf material; *Provided, That:*
- (i) The average of all the sample units in the sample does not exceed 25 percent, by weight, of leaf material; and
 - (ii) The average of all the sample units in the sample is not less than 25 percent, by weight, of head material; and
 - (iii) No single sample unit contains less than 15 percent, by weight, of head material, or more than 35 percent, by weight, of leaf material.
- (2) *Length* - The AL values and/or the cumulative acceptance numbers for the defects permitted, specified in Table II or III, as applicable, are not exceeded.

§52.641 LOT ACCEPTANCE FOR QUALITY.

A lot of frozen broccoli is considered as meeting the requirements for quality if:

- (a) The number of deviants for the prerequisites specified for the applicable grade in §52.636 does not exceed the acceptance number specified in the sampling plans in the "Regulations Governing Inspection of Processed Fruits and Vegetables and Related Products" (§§52.1 - 52.83); and
- (b) The AL values and/or the cumulative acceptance numbers for the defects permitted for the applicable defect classifications specified in Tables V (or V Alternate), VI, and VII are not exceeded.

DEFECT TALLY SHEET FOR FROZEN BROCCOLI

No. size, kind of container - - - - -								
Label - - - - -								
Container mark - - - - -								
Net weight - - - - -								
Sample unit no. - - - - -								
Prerequisite grade - - - - -								
Reason downgraded - - - - -								
DEFECT	Min.	Maj.	Sev.	Crit.	Min.	Maj.	Sev.	Crit.
Color								
Uniformity of size								
Detached fragments								
Leaves, loose & pieces								
DAMAGE	Broken							
	Blemished							
	Mechanical & other							
	Reasonably well							
TRIMMING	Poorly							
	Reasonably well developed							
DEVELOPMENT	Poorly developed							
	Fiber							
Harmless Extraneous Material								
Total (each class)								
Cumulative Total (each class)								
Total (all classes)								
Cumulative Total (all classes)								
Style								
Total								
Cumulative Total								

Dated: April 1, 1975

E. L. Peterson
 Administrator
 Agricultural Marketing Service

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